respective desired characteristic wavelength of each of the at least two optoelectronic components.

28. (Amended) A device for the wavelength tuning of an optoelectronic component array having at least two optoelectronic components, the device comprising:

a respective at least one resistance heater associated with each of the at least two optoelectronic components for setting a respective characteristic wavelength of the respective optoelectronic component;

a common voltage or current source; and

a respective resistor arrangement connected between each respective at least one resistance heater and the common voltage or current source, a respective total resistance of each respective resistor arrangement being variable so as to allow for wavelength tuning.

REMARKS

Claims 18 to 36 are now pending.

Applicants respectfully request reconsideration of the present application in view of this response.

Claims 18 to 36 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, claim 18 was rejected for reciting "wavelength deviation" and that "respective resistance" values are "selectively changed. Claim 18 explains that to determine the wavelength deviation for each of the optoelectronic components, one should compare a respective measured wavelength of each of the optoelectronic component with a respective desired characteristic wavelength. See also, Specification, page 2, lines 20-26. Claim 18 has been amended for clarification purposes. No new matter has been added. Further, claim 18 explains that the respective resistance values of a resistor arrangement are selectively changed so as to achieve a respective thermal change of the respective resistance heater needed for setting the respective desired characteristic wavelength of each of the optoelectronic components. Subsequent claims 19 to 26 recite further features for selectively changing the respective resistance values. These features are supported by the Specification. See also, Specification, page 2, line 26 et seq. Accordingly, Applicants respectfully submit that rewritten claim 18 is not indefinite or unclear with respect to wavelength deviation or respective resistance values. Withdrawal of the rejection of claim 18 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Claim 28 was rejected for reciting wavelength tuning. Claim 28 explains that a resistance heater associated with an optoelectronic component sets a respective characteristic wavelength of the optoelectronic component. A resistor arrangement is connected between the resistance heater and the common voltage or current source. The wavelength can be tunable by changing the total resistance and/or heating power. See Specification, page 3, lines 10 et seq. Claim 28 has been amended for clarification purposes. These features are supported by the Specification. No new matter has been added. Accordingly, Applicants respectfully submit that rewritten claim 28 is not indefinite or unclear with respect to wavelength tuning. Withdrawal of the rejection of claim 28 under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Support for these claim amendments is given throughout the Specification. No new matter has been added. Attached hereto is a Version Showing Changes Made wherein any additions to the claims are shown by underlining and deletions are shown by square bracketing.

Claims 28 to 36 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent No. 59-204292 to Hazemoto et al. (the "Hazemoto reference").

The Hazemoto reference (according to the Abstract and Figures provided with the Office Action) purportedly concerns a semiconductor device in which the temperatures of a plurality of semiconductor light emitting elements on the same substrate are independently controlled "to obtain lights of a plurality of wavelengths." The Hazemoto reference refers to using an array of semiconductor elements on a substrate where a heating part independently provided to each laser has an insulation member, a heat generating member, an electrode and a protection film. Apparently, the temperature adjusting part has a supporting member, a temperature sensitive element detecting the temperature of the supporting member, a thermoelectric element heating and cooling the member based on information from the temperature sensitive element, and a heat dissipating fin to diffuse heat from the thermoelectric element to the atmosphere. (See Abstract, Hazemoto reference). The oscillation wavelength of the semiconductor laser is purportedly independently controlled by changing the current impressed on its heat generating member. (See Abstract, Hazemoto reference).

Claim 28, as rewritten above, recites:

> A device for the wavelength tuning of an optoelectronic component array having at least two optoelectronic components, the device comprising:
>
> a respective at least one resistance heater associated with each of the at least two optoelectronic components for setting a respective characteristic wavelength of

the respective optoelectronic component;

a common voltage or current source; and

a respective resistor arrangement connected between each respective at least one resistance heater and the common voltage or current source, a respective total resistance of each respective resistor arrangement being variable so as to allow for wavelength tuning.

In contrast, the Hazemoto reference does not teach or suggest the features of claim 28, including requiring a device having a respective resistance heater associated with each of the at least two optoelectronic components, the respective resistance heater being used for setting a respective characteristic wavelength of the optoelectronic component. Further, the Hazemoto reference also does not teach or suggest using a respective resistor arrangement connected between a resistance heater and the common voltage or current source, nor does the Hazemoto reference teach varying the total resistance of the resistor arrangement so as to allow for wavelength tuning. In fact, the Hazemoto reference apparently teaches a method for obtaining lights of a plurality of wavelength by independently controlling the light emitting elements on the same substrate. (See Abstract, Hazemoto reference) And, the Hazemoto reference uses a temperature adjusting part having a supporting member, a temperature sensitive element to detect the temperature of the supporting member and a thermoelectric element to heat and cool the supporting member based on information from the temperature sensitive element, as well as a heat dissipating fin to diffuse heat from the thermoelectric element. (See Abstract and Figure, Hazemoto reference) Further, the Hazemoto reference purports to independently control the oscillation wavelength of the semiconductor laser by changing the current impressed on the heat generating member.

Accordingly, Applicants respectfully submit that the Hazemoto reference does not teach or suggest all of the features of claim 28, as discussed above. And since claims 29 to 36 depend from claim 28, those claims are allowable for the same reasons as for claim 28. Withdrawal of the rejection of claims 28 to 36 is respectfully requested.

Claims 18 to 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent No. 59-204292 to Hazemoto et al. (the "Hazemoto reference") in view of U.S. Patent No. 5,373,515 to Wakabayashi et al. (the "Wakabayashi reference").

The Hazemoto reference (according to the Abstract and Figures provided with the Office Action) purportedly concerns a semiconductor device in which the temperatures of a plurality of semiconductor light emitting elements on the same substrate are independently controlled "to obtain lights of a plurality of wavelengths." The Hazemoto reference refers to

using an array of semiconductor elements on a substrate where a heating part independently provided to each laser has an insulation member, a heat generating member, an electrode and a protection film. Apparently, the temperature adjusting part has a supporting member, a temperature sensitive element detecting the temperature of the supporting member, a thermoelectric element heating and cooling the member based on information from the temperature sensitive element, and a heat dissipating fin to diffuse heat from the thermoelectric element to the atmosphere. (See Abstract, Hazemoto reference). The oscillation wavelength of the semiconductor laser is purportedly independently controlled by changing the current impressed on its heat generating member. (See Abstract, Hazemoto reference).

Claim 18, as rewritten above, recites:

> A method for the wavelength tuning of an optoelectronic component array, the optoelectronic component array including at least two optoelectronic components, the method comprising:
>
> comparing a respective measured wavelength of each of the at least two optoelectronic components with a respective desired characteristic wavelength so as to determine a respective wavelength deviation for each of the at least two optoelectronic components; and
>
> selectively changing a respective resistance value of a respective resistor arrangement connected between each of the at least two optoelectronic components and a respective resistance heater associated with each of the at least two optoelectronic components so as to achieve a respective thermal change of the respective resistance heater for setting the respective desired characteristic wavelength of each of the at least two optoelectronic components.

In contrast, the Hazemoto reference does not teach or suggest the method for wavelength tuning an optoelectronic component array features of claim 18, requiring comparing a respective measured wavelength of the optoelectronic component array with a desired characteristic wavelength so as to determine a wavelength deviation for the optoelectronic components. Moreover, the Hazemoto reference does not teach or suggest the claim 18 method step of selectively changing a resistance value of a resistor arrangement connected between the optoelectronic components and a resistance heater associated with the optoelectronic components so as to achieve a thermal change of the resistance heater for setting the desired characteristic wavelength of the optoelectronic components. Instead, the Hazemoto reference apparently teaches a method for obtaining lights of a plurality of wavelength by independently controlling the light emitting elements on the same substrate. (See Abstract, Hazemoto reference) And, the Hazemoto reference uses a temperature adjusting part having a supporting member, a temperature sensitive element to detect the

temperature of the supporting member and a thermoelectric element to heat and cool the supporting member based on information from the temperature sensitive element, as well as a heat dissipating fin to diffuse heat from the thermoelectric element. (See Abstract and Figure, Hazemoto reference) Further, the Hazemoto reference purports to independently control the oscillation wavelength of the semiconductor laser by changing the current impressed on the heat generating member.

Accordingly, Applicants respectfully submit that the Hazemoto reference does not teach or suggest all of the features of claim 18, as discussed above. And since claims 19 to 27 depend from claim 18, those claims are allowable for the same reasons as for claim 18.

The secondary Wakabayashi reference does not cure the deficiencies of the Hazemoto reference. The Wakabayashi reference purportedly concerns a laser wavelength controlling apparatus adapted for controlling the wavelength of a narrow-band oscillation laser beam at a high accuracy for a long period of time even if environmental conditions such as atmospheric temperature and pressure changes. (See Abstract, Wakabayashi reference) The Wakabayashi reference refers to using a reference light source for generating a reference light to measure the wavelength of an oscillated laser beam with a narrow bandwidth, a detector means for leading the oscillated laser beam and the reference light into a spectroscope serving as a wavelength detector and detecting the absolute wavelength of the oscillated laser beam; and means for controlling the wavelength selected by the wavelength selective element so that the absolute wavelength detected by the detector means may correspond to a preset wavelength. (See col. 2, lines 6-22, Wakabayashi reference)

In contrast, the Wakabayashi reference does not teach or suggest the method for wavelength tuning an optoelectronic component array features of claim 18, requiring comparing a respective measured wavelength of the optoelectronic component array with a desired characteristic wavelength so as to determine a wavelength deviation for the optoelectronic components. Moreover, the Wakabayashi reference does not teach or suggest the claim 18 method step of selectively changing a resistance value of a resistor arrangement connected between the optoelectronic components and a resistance heater associated with the optoelectronic components so as to achieve a thermal change of the resistance heater for setting the desired characteristic wavelength of the optoelectronic components.

Accordingly, Applicants respectfully submit that the Wakabayashi reference, alone or in combination with the Hazemoto reference, does not teach or suggest all of the features of claim 18, as discussed above. And since claims 19 to 27 depend from claim 18, those claims

are allowable for the same reasons as for claim 18.

Withdrawal of the rejection under 35 U.S.C. § 103(a) of claims 18 to 27 is respectfully requested.

Moreover, to reject a claim as obvious under 35 U.S.C. § 103, the prior art must describe or suggest each claim element and it must also provide a motivation or suggestion for modifying the elements in the manner contemplated by the claim. (See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990)). The cases of In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), also make plain that a subjective "obvious to try" standard is not proper.

The Court in the case of In re Jones stated that:

> Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].

In re Jones, 21 U.S.P.Q.2d at 1943 & 1944 (citations omitted). In short, there must be evidence of why a person having ordinary skill in the art would be motivated to modify a reference to provide the claimed subject matter of the claims.

Applicants respectfully submit that the Hazemoto reference and the Wakabayashi reference are not combinable, and there is no motivation to combine those two references. The Hazemoto reference is concerned with obtaining lights of a plurality of wavelengths by independently controlling the temperatures of a plurality of semiconductor light emitting elements on the same substrate. (Abstract, Hazemoto reference) The Wakabayashi reference is concerned with stabilizing and controlling the absolute value of a wavelength of an oscillating laser beam with a narrow bandwidth with a high accuracy for a long period of time in the face of environmental changes. (col. 1, line 58 - col. 3, line 21, Wakabayashi reference) Those concerns present nonanalogous motivations, and thus, noncombinable motivations.

In addition, any and all arguments from Applicants' earlier response are incorporated herein by reference.

It is therefore respectfully submitted that the claims rejected as obvious are allowable over the references relied upon in the Office Action. Thus, it is respectfully submitted that all of claims 18 to 36 are allowable for the foregoing reasons.

CONCLUSION

In view of all of the above, it is believed that any rejections have been obviated, and that claims 18 to 36 are allowable. It is therefore respectfully requested that the rejections be withdrawn, and that the present application issue as early as possible.

If for any reason the Examiner believes that contact with Applicants' attorney would advance the prosecution of this application, he or she is invited to contact the undersigned at the number given below.

Respectfully submitted, By: Linda M. Saltiel
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Dated: January 3, 2003

By: Richard L. Mayer
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CUSTOMER NO. 26646

VERSION SHOWING CHANGES MADE
U.S. Application Serial No. 09/555,662
Attorney Docket No. 2345/117

IN THE CLAIMS:

Please amend without prejudice claims 18 and 28 as follows:

18. (Amended) A method for the wavelength tuning of an optoelectronic component array, the optoelectronic component array including at least two optoelectronic components, the method comprising:

comparing a respective measured wavelength of each of the at least two optoelectronic components with a respective desired characteristic wavelength so as to determine a respective wavelength deviation for each of the at least two optoelectronic components; and

selectively changing a respective resistance value of a respective resistor arrangement connected between each of the at least two optoelectronic components and a respective resistance heater associated with each of the at least two optoelectronic components so as to achieve a respective thermal change of the respective resistance heater for setting the respective desired characteristic wavelength of each of the at least two optoelectronic components.

28. (Amended) A device for the wavelength tuning of an optoelectronic component array having at least two optoelectronic components, the device comprising:

a respective at least one resistance heater associated with each of the at least two optoelectronic components for setting a respective characteristic wavelength of the respective optoelectronic component;

a common voltage or current source; and

a respective resistor arrangement connected between each respective at least one resistance heater and the common voltage or current source, a respective total resistance of each respective resistor arrangement being variable so as to allow for wavelength tuning.